(1) Fundamentals of radiation safety including—

(i) Characteristics of radiation;

(ii) Units of radiation dose and quantity of radioactivity;

(iii) Hazards of exposure to radiation;

(iv) Levels of radiation from licensed material;

(v) Methods of controlling radiation dose (time, distance, and shielding); and

(vi) Radiation safety practices, including prevention of contamination, and methods of decontamination.

(2) Radiation detection instruments including—

(i) Use, operation, calibration, and limitations of radiation survey instruments;

(ii) Survey techniques; and

(iii) Use of personnel monitoring equipment;

(3) Equipment to be used including—

(i) Operation of equipment, including source handling equipment and remote handling tools;

(ii) Storage, control, and disposal of licensed material; and

(iii) Maintenance of equipment.

(4) The requirements of pertinent Federal regulations. And

(5) Case histories of accidents in well logging.

§ 39.63 Operating and emergency procedures.

Each licensee shall develop and follow written operating and emergency procedures that cover—

(a) The handling and use of licensed materials including the use of sealed sources in wells without surface casing for protecting fresh water aquifers, if appropriate;

(b) The use of remote handling tools for handling sealed sources and radioactive tracer material except low-activity calibration sources;

(c) Methods and occasions for conducting radiation surveys, including surveys for detecting contamination, as required by § 39.67(c)–(e);

(d) Minimizing personnel exposure including exposures from inhalation and ingestion of licensed tracer materials;

(e) Methods and occasions for locking and securing stored licensed materials;

(f) Personnel monitoring and the use of personnel monitoring equipment;

(g) Transportation of licensed materials to field stations or temporary jobsites, packaging of licensed materials for transport in vehicles, placarding of vehicles when needed, and physically securing licensed materials in transport vehicles during transportation to prevent accidental loss, tampering, or unauthorized removal;

(h) Picking up, receiving, and opening packages containing licensed materials, in accordance with § 20.205 of this chapter;

(i) For the use of tracers, decontamination of the environment, equipment, and personnel;

(j) Maintenance of records generated by logging personnel at temporary jobsites;

(k) The inspection and maintenance of sealed sources, source holders, logging tools, injection tools, source handling tools, storage containers, transport containers, and uranium sinker bars as required by § 39.43;

(l) Identifying and reporting to NRC defects and noncompliance as required by Part 21 of this chapter;

(m) Actions to be taken if a sealed source is lodged in a well;

(n) Notifying proper persons in the event of an accident; and

(o) Actions to be taken if a sealed source is ruptured including actions to prevent the spread of contamination and minimize inhalation and ingestion of licensed materials and actions to obtain suitable radiation survey instruments as required by § 39.33(b).

§ 39.65 Personnel monitoring.

(a) The licensee may not permit an individual to act as a logging supervisor or logging assistant unless that person wears, at all times during the handling of licensed radioactive materials, either a film badge or a thermoluminescent dosimeter (TLD), Each film badge or TLD must be assigned to and worn by only one individual. Film badges must be replaced at least monthly and TLDs replaced at least quarterly. After replacement, each film badge or TLD must be promptly processed.

(b) The licensee shall provide bioassay services to individuals using licensed materials in subsurface tracer studies if required by the license.

(c) The licensee shall retain records of film badge, TLD and bioassay results for inspection until the Commission authorizes disposition of the records.

§ 39.67 Radiation surveys.

(a) The licensee shall make radiation surveys, including but not limited to the surveys required under paragraphs (b) through (e) of this section, of each area where licensed materials are used and stored.

(b) Before transporting licensed materials, the licensee shall make a radiation survey of the position occupied by each individual in the vehicle and of the exterior of each vehicle used to transport the licensed materials.

(c) If the sealed source assembly is removed from the logging tool before departure from the temporary jobsite, the licensee shall confirm that the logging tool is free of contamination by energizing the logging tool detector or by using a survey meter.

(d) If the licensee has reason to believe that, as a result of any operation involving a sealed source, the encapsulation of the sealed source could be damaged by the operation, the licensee shall conduct a radiation survey, including a contamination survey, during and after the operation.

(e) The licensee shall make a radiation survey at the temporary jobsite before and after each subsurface tracer study to confirm the absence of contamination.

(f) The results of surveys required under paragraphs (a) through (e) of this section must be recorded and must include the date of the survey, the name of the individual making the survey, the identification of the survey, instrument used, and the location of the survey. The licensee shall retain records of surveys for inspection by the Commission for 3 years after they are made.

§ 39.69 Radioactive contamination control.

(a) If the licensee detects evidence that a sealed source has ruptured or licensed materials have caused contamination, the licensee shall initiate immediately the emergency procedures required by § 39.63.

(b) If contamination results from the use of licensed material in well logging, the licensee shall decontaminate all work areas, equipment, and unrestricted areas.

(c) During efforts to recover a sealed source lodged in the well, the licensee shall continuously monitor, with an appropriate radiation detection instrument or a logging tool with a radiation detector, the circulating fluids from the well, if any, to check for contamination resulting from damage to the sealed source.

Subpart E—Security, Records, Notifications

§ 39.71 Security.

(a) A logging supervisor must be physically present at a temporary jobsite whenever licensed materials are being handled or are not stored and locked in a vehicle or storage place. The logging supervisor may leave the jobsite in order to obtain assistance if a source becomes lodged in a well.

(b) During well logging, except when radiation sources are below ground or in shipping or storage containers, the logging supervisor or other individual designated by the logging supervisor shall maintain direct surveillance of the operation to prevent unauthorized entry into a restricted area, as defined in § 20.3 of this chapter.

§ 39.73 Documents and records required at field stations.

Each licensee shall maintain the following documents and records at the field station:

(a) A copy of parts 19, 20, and 39 of NRC regulations;

(b) The license authorizing the use of licensed material;

(c) Operating and emergency procedures required by § 39.63;

(d) The record of radiation survey instrument calibrations required by § 39.33;

(e) The record of leak test results required by § 39.35;

(f) Physical inventory records required by § 39.37;